

WHAT IS CLAIMED:

- 5 1. A headering arrangement for a heat exchanger for use in automotive applications, comprising:
- a heat exchanger body ;
 - a heat exchanger tank;
 - a header;
 - 10 a tube extending from the heat exchanger body and passing through the header;
 - a tank foot at the end of the heat exchanger tank;
 - a tank to header sealing gasket; and
 - a collar,
 - 15 wherein the gasket is essentially coplanar with the header and wherein the collar is situated at the area of passage of the tube through the header.
- 20 2. A headering arrangement for a heat exchanger as in claim 1, wherein the collar acts as a structural feature or rib.
3. A headering arrangement for a heat exchanger as in claim 1; wherein the gasket is essentially flat.
4. A headering arrangement for a heat exchanger as in claim 3, wherein the gasket is cured in place.
- 25 5. A headering arrangement for a heat exchanger as in claim 2, wherein the collar height is proportional to header thickness, tube slot width and tube pitch.

6. A headering arrangement for a heat exchanger as in claim 5, wherein the collar height is at least one and one half times the header thickness.

6. A headering arrangement for a heat exchanger as in claim 4, wherein the tank to header sealing gasket and the tank foot are retained within the collar.

7. A headering arrangement for a heat exchanger as in claim 6, wherein the collar is an upturned collar.

8. A heat exchanger as in claim 7, wherein the heat exchanger is used in high or extreme pressure internal operating environments.

9. A headering arrangement for a heat exchanger for use in automotive applications, comprising:

- a heat exchanger body part;
 - a heat exchanger tank part;
 - a header;
 - a tube extending from the heat exchanger body part;
 - a header pan at the end of the tube;
 - a tank foot at the end of the heat exchanger tank part;
 - a gasket;
- wherein the pan is a flat pan comprising at least one collar.

10. A headering arrangement for a heat exchanger as in claim 9, wherein the tube extending from the heat exchanger body has a length of less than or about twice the thickness of the header plus the tank foot width of the header.

11. A headering arrangement for a heat exchanger as in claim 10, wherein the header pan further comprises at least one flat medallion.

12. A headering arrangement for a heat exchanger as in claim 11, wherein the at least one collar is inverted vis a vis the line of extension of the tube.

13. A headering arrangement for a heat exchanger as in claim 12, wherein the gasket is basically flat in shape.

14. A heat exchanger as in claim 13, wherein the heat exchanger is used in high or extreme pressure internal operating environments.

15. A method of making a headering arrangement for a heat exchanger with a flat header comprising the steps of:

stamping a metal sheet using a stamping tool;

maintaining flatness of the plane of the header during the stamping step;

providing a gasket between the tank foot and the gasket flange;

providing a crimp tab to retain the tank foot between the gasket flange and the outer flange;

scoring the tab at the appropriate position to allow it to retain the tank foot; and

crimping the tab at the appropriate position;

whereby the resultant headering arrangement has the gasket essentially coplanar with the header plane.